plete-coverage nocturnal surveys to detect owl presence. Follow-up daytime visits were conducted to search for roosts and nests near nocturnal detection sites. We detected spotted owls in 13 plots and were able to resolve those detections to 33 territories within 12 plots. Density of owl territories in mixed conifer (one territory/5.8 km<sup>2</sup>) was significantly greater than densities in ponderosa pine (one territory/23.3 km<sup>2</sup>) and pinyon-juniper (one territory/ 46.6 km<sup>2</sup>). Roost sites of owls residing in pine and pinyonjuniper inventory plots were located in mixed conifer stands in canyon bottoms or on sheltered north-facing slopes.

## **REGIONAL PATTERNS IN THE FOOD HABITS OF THE MEXICAN SPOTTED OWL**

WARD, J.P. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO 80524 U.S.A. R.B. DUNCAN. Southwestern Field Biologists, Tucson, AZ 85710 U.S.A. M.E. SEAMANS AND D.R. OLSON. Department of Wildlife, Humboldt State University, Arcata, CA 95521 U.S.A. J.L. GANEY AND W.M. BLOCK. USDA Forest Service, Rocky Mountain Research Station, Flagstaff, AZ 86001 U.S.A. D.W. WILLEY. Department of Biology, Northern Arizona University, Flagstaff, AZ 86001 U.S.A. C. JOHNSON AND R.T. REYNOLDS. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO 80524 U.S.A. S.B. DEROSIER. P.O. Box 795, Overgaard, AZ 85933 U.S.A. S.E. RINKEVICH. USDI Fish & Wildlife Service, Albuquerque, NM 87107 U.S.A. L.A. TARANGO AR-AMBULA. Colegio de Postgraduados, Salinas De Hildago, San Luis Potosi, Mexico 78600

Food habits compiled from 13 studies of the Mexican spotted owl (Strix occidentalis lucida) were examined to help plan a conservation strategy for this threatened species. Data from these studies were comprised of 11 164 prey items in 25 samples representing 18 different geographic locations and a minimum of 204 owls. A cumulative distribution of items (%) ranked according to prevalence indicated that on average, 90% of the owl's diet consisted of woodrats (Neotoma spp.; 30%), white-footed mice (Peromyscus spp.; 28%), arthropods (13%), voles (Microtus spp.; 9%), birds (5%), and other medium-sized rodents (primarily diurnal sciurids; 4%). A cumulative distribution of consumed biomass (%) indicated that 90% of the owl's diet consisted of woodrats (53%), rabbits (Sylvilagus spp., Lepus spp.; 13%), white-footed mice (9%), birds (9%), and other medium-sized rodents (6%). However, we found regional differences in the frequency of woodrats (F = 4.16, df = 6, 18, P = 0.008), birds (F =5.12, df = 6, 15, P = 0.005), and other medium-sized mammals (F = 4.44, df = 6, 14, P = 0.010) taken by the owls among seven geographic provinces. We also found that range-wide averages of the owl's diet may not adequately reflect prey associated with the owl's reproduction. We considered these differences to be reflections of local habitat conditions that varied geographically. These findings supported a regional approach to conservation of the Mexican spotted owl.

## Home Range Characteristics of Mexican Spotted Owls in Southern Utah

WILLEY, D.W. Department of Biological Sciences, Northern Arizona University, Flagstaff, AZ 86011 U.S.A. C.V. RIPER III. USDI National Biological Survey, Colorado Plateau Research Station, Northern Arizona University, Flagstaff, AZ 86011 U.S.A.

Due to difficulties in observing nocturnal movements of Mexican spotted owls (Strix occidentalis lucida) in rocky canyonland terrain, our understanding of their habitat is poor. We radiotracked 14 adult Mexican spotted owls in rocky canyonlands across southern Utah for 6-22 mo. Owls were tracked on foot using a hand-held receiving system and from a Cessna 172 fixed-wing aircraft using wing-mounted antennae. Owls selected home ranges characterized by steep complex cliffs and deeply eroded canyons within the landscape. Minimum convex polygon home ranges of individual owls were 689-2055 ha and adaptive kernel home ranges were 509-2302 ha. Average summer minimum convex polygon home range size of individual owls was 361 ha in contrast to 886 ha for winter home ranges. Nocturnal spatial use patterns indicated that individuals utilized activity centers within home ranges. Overall, seasonal movements of owls showed considerable variability, and several owls used distinct summer and winter home ranges. Southwestern dwarf woodland was the most common vegetation community found within spotted owl home ranges, followed by mixed-conifer forest, mountain shrub, ponderosa pine forest and deciduous woodland, and finally, various desert grassland-shrub communities.

## DENSITY, REPRODUCTIVE STATUS, AND HABITAT Relationships of Mexican Spotted Owls in Southwestern Chihuahua, Mexico

YOUNG, K.E. Department of Fishery and Wildlife Sciences, New Mexico State University, Las Cruces, NM 88003 U.S.A. R. VALDEZ. Department of Fishery and Wildlife Sciences, New Mexico State University, Las Cruces, NM 88003 U.S.A. P. ZWANK. USDA National Biological Survey, New Mexico Cooperative Fish and Wildlife Research Unit, Las Cruces, NM 88003 U.S.A.

In Mexico, little is know about current density, reproductive status and habitat use by Mexican spotted owls (*Strix occidentalis lucida*). The objective of the study was to estimate density, reproductive success and characterize habitat at Mexican spotted owl roosting and nesting sites. Five quadrats of 70–80 km<sup>2</sup> each were established in the study area and completely surveyed four times between April and August 1994. Eleven pairs, 10 single males, and one single female were found in the study area. Crude